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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Raphael Ihringer

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KRIEG DEVAULT LLP

ONE INDIANA SQUARE

SUITE 2800

INDIANAPOLIS, IN 46204-2079

EXAMINER

CANTELMO, GREGG

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

07/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,515	Applicant(s) IHRINGER ET AL.	
	Examiner Gregg Cantelmo	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-49 is/are rejected.
- 7) ☒ Claim(s) 25-49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/30/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Preliminary Amendment

1. In response to the preliminary amendment received June 30, 2004:
 - a. Claims 1-24 have been cancelled. Claims 25-49 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed June 30, 2004 has been placed in the application file and the information referred to therein has been considered as to the merits. Applicant is further reminded to timely submit any pertinent prior art cited in the international search report of the corresponding foreign applications related to this case such as those cited in EP 1328035 A1 so as to meet the requirements of 37 C.F.R. 1.56.
4. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

5. The drawings received June 30, 2004 are acceptable for examination purposes.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Interpretation

6. The acronym PEN has been interpreted as the cathode-electrolyte-anode assembly as defined in paragraph 2 of the instant application. The term PEN is more accurately described as a positive electrode - electrolyte - negative electrode rather

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than the term Positive-Electrolyte-Negative as used in the specification and claims and it is suggested that the term electrode be inserted after the terms positive and negative.

Specification

7. The disclosure is objected to because of the following informalities: The term PEN is more accurately described as a positive electrode - electrolyte - negative electrode rather than the term Positive-Electrolyte-Negative as used in the specification and it is suggested that the term "electrode" be inserted after the terms positive and negative. Appropriate correction is required.

Claim Objections

8. Claim 25-49 are objected to because of the following informalities: the claims recite various acronyms and should define these acronyms at the onset of the claims. thus for example the term "SOFC PEN" should be first described and then the appropriate acronym provided thereafter in parentheses to clearly define the acronyms recited in the claims. This also occurs with other acronyms such as LSM and LSC in claim 44. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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a. The claims include plural reference characters for at least some aspects of the claims such as the anode support layer and anode collector layer. The reference characters are to a plurality of elements for each layer and renders the claims indefinite since it is unclear if the claims intend to limit these layers to the multilayer combination suggested by the incorporation of plural reference characters for each layer or instead are to a genus of materials for each layer. For purposes of examination, the claimed layer is held to be one or more support layers.

b. Claim 26 recites the limitations "the summit surfaces of the bumps" in lines 5-7. There is insufficient antecedent basis for these limitations in the claim.

c. The term "it" in claim 26 is a relative term which renders the claim indefinite. The term "it" is not defined by the claim. For example the recitation of "it comprises" should be replaced with the actual element which the term "it" is referring to and since there are a multitude of elements in the SOFC PEN any of those elements could be "it". This also applies to claims 29.

d. The term "thin layers" in claims 31-33 is a relative term which renders the claim indefinite. The term "thin" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

e. Claim 40 recites the limitation "the smooth rear surface of the anode support layer" in 2 and "the smooth front face of the anode collector layer" in lines 2-3. There is insufficient antecedent basis for these limitations in the claim.

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f. Regarding claim 41, the phrase "in particular" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention or not.

g. Regarding claim 45, the claims recite a ratio "L/d" without clearly defining each variable in the ratio, namely the claim fails to define the variable "L". This also applies to claim 46. Also these claims recite the phrase "in particular" and "more particularly" which renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention or not.

Allowable Subject Matter

9. Claims 25-49 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record appear to teach, suggest or render obvious the solid oxide fuel cell "PEN" of the claims wherein the apparatus includes the anode active layer, anode mechanical support layer, and anode current collector layer wherein the anode current collector layer presents, on its rear face which is designed to come into contact with an interconnecting plate, a raised structure which is chosen so as to form gas circulation channels with said interconnecting plate.

For example U.S. Patent No. 7,074,513 discloses providing reactant flow channels on the backside of a layer adjacent to the fuel cell, this reference does not reasonably teach or suggest of the combination of the active layer, anode mechanical support layer, and anode current collector layer wherein the anode current collector

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layer presents, on its rear face which is designed to come into contact with an interconnecting plate. Rather the reference appears to teach or suggest of only an anode active layer and a support layer having backside reactant channels. The structure does not teach of the three layers as required in the claims nor does it reasonably teach of the structure

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


24 June 2007

Gregg Cantelmo

**GREGG CANTELMO
PRIMARY EXAMINER**